

#### AIR PERMIT ROUTING APPROVAL SLIP





Activity No.: PER 2000 0002	mpany: Couple Facility: P2 Pr nit No.: P5 D - 1	co Inc.  prect (LCA  A-584 (M-3		iew No.: 3/3// Name: 8MZ3/3// h: Yes No
Technical Review Approved	Date Received	Date Forwarded	_	mments
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Air Toxics Support		<del></del>		<u> </u>
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Management Review Approved	Date Received .	Date Forwarded	Coi	mments
Supervisor				•
Manager 47	6/24/02	6/26/02	approved as a	#
Advisor ,	new 7/8/02	7/16/02	adjusted	
Assistant Secretary	70,02	7/24/22	L.	I faster
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anal 9/2	Please Answe	er All of the Following	JUL	24 2002 /Cct-
1. Fee Paid: ( / ()	Yes 🛂 No 🗌	No Fee Required		Day
2. LAC 33:I.1701 Information:	Yes No No		<u> </u>	
3. Groundwater Approval: 4. Air Toxics Support:	Yes No			(Policy Memo 18)
<ul><li>4. Air Toxics Support:</li><li>5. IT Questions:</li></ul>	Yes No No	Date:		
J. 11 Questions.	i es 🔽 📈		(Pe	rmit Manual, § 4.6, p.120)
6. Compliance Histories:	Yes No No		I нw□ sw□	Water 🗀
(New )				TPY VOC NSR; Memo 9)
7. Application Completeness Review:	Yes 🗌 No 🗔	Complete Date:		Sent Date:
8. Public Notice of Application:	Yes No 🕠		(I	AC 33.I.1503; Memo 41)
Newspaper:			•	Date:
9. Public Notice of Proposed Permit:	Yes No	(LAC 33:III.531.A	; Policy Memos 36 & 38	3)
Newspaper: The Advo	cate, bal	in Rouse	<del>.</del>	Date: _7/3//n 2
Newspaper: Lake Cha	des Amer	ican Prese		Date: 7/3///2
No. 5-9, if No, state reason here:	Yes No No	(LAC 33:111.2113.	A.4)	
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11. Affected Glycol Unit:	Yes  No  막	(LAC 33:III.2116)		
12. Compressor Testing:	Yes No	/ Engineering Appro		(Memo 28)
13. Affected Tanks: NSPS Subpart K	Ka 🗍 Kb 🗍	Kb (60.116b)	NA 🗌 ————	
Other NSPS Subparts:				
14. Applicable NESHAP Subparts: Part 63:	Yes No No	Part 61:		
15. PSD and/or NNSR Review:	Yes No	Dollutonto 1	1/0	
16. Contemporaneous Netting:	Yes  No  No  No  No  No  No  No  No  No  N	Pollutants Pollutants	o, Nx, co	1
17. Proposed Permit Sent to/Received by I		- Special) Date:	50-, A/OX	Email L Mail
18. Basis for Decision (Memo 66):	Yes V Date:			Talali [
	res y Date:		VA I I	





#### State of Louisiana

#### **Department of Environmental Quality**



M. J. "MIKE" FOSTER, JR. GOVERNOR L. HALL BOHLINGER SECRETARY

Certified Mail No.: 7000 1530 0006 2105 7898

Mr. Fred W. Stiers
Manager, Lake Charles Refinery
Conoco Inc.
Post Office Box 37
Westlake, Louisiana 70669

RE: PSD-LA-584 (M-3), Petrozuata Syncrude Project Modification, Lake Charles Refinery, Conoco Inc., Westlake, Calcasieu Parish, Louisiana. Agency Interest No. 2538

Dear Mr. Stiers:

Enclosed is your permit, PSD-LA-584 (M-3). Operation of the proposed project is not allowed until such time as the corresponding operating permits are issued.

Should you have any questions concerning the permit, contact Dr. Qingming Zhang at 225-765-2787.

Sincerely,

Linda Korn Levy

Assistant Secretary

QMZ

c: Southwest Regional Office

US EPA Region VI

9-20-02





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#### PSD-LA-584 (M-3)

AUTHORIZATION TO MODIFY AND OPERATE AN EXISTING FACILITY PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE, LAC 33:111.509

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Conoco Inc. (AI No. 2538) 2210 Old Spanish Trail Westlake, Louisiana 70669

is authorized to implement the Petrozuata Syncrude Project Modification at the Lake Charles Refinery in

Westlake Calcasieu Parish, Louisiana

subject to the emission limitations, monitoring requirements, and other conditions set forth hereinafter.

This permit and authorization to construct shall expire at midnight on has begun by such date, or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by such date.

Signed this 20th day of September, 2002.

Linda Korn Levy

Assistant Secretary

Office of Environmental Services

Louisiana Department of Environmental Quality

PETROZUATA SYNCRUDE PROJECT MODIFICATION

LAKE CHARLES REFINERY, CONOCO INC.

WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538

PSD-LA-584 (M-3)

#### **PURPOSE**

To implement the Petrozuata Syncrude Project which will allow the Refinery to process Petrozuata Syncrude. The ability to process this syncrude (a mixture of virgin crude and cutter stock) will secure a guaranteed crude supply through joint venture agreements and increase production of heavy products such as diesel, gas oil, light cycle oil, slurry oil, and cracked distillate. In addition, modifications to various process units will be required to enable the facility to process the increased sulfur load associated with refining the syncrude. This review will include  $PM_{10}$ , CO, and  $NO_x$  as pollutants subject to PSD requirements.

#### RECOMMENDATION

Approval of the proposed project and issuance of a permit.

#### REVIEWING AGENCY

Louisiana Department of Environmental Quality - Office of Environmental Services.

#### PROJECT DESCRIPTION

The Petrozuata Syncrude Project was approved under Permit PSD-LA-584 (M-2) and Part 70 Operating Permits 2623-V0, 2624-V0, 2625-V0, 2626-V0, and 2627-V0, granted August 12, 1999. During the construction phase of the project, Conoco recalculated the steam demand from the refinery boilers, revised emissions from the project-affected heaters, and incorporated two additional projects associated with the Petrozuata Syncrude Project: The Fluid Catalytic Cracker (FCC) Riser Modification and Excel Paralubes Hydrocracker Capacity Increase Projects. In addition, Conoco requests approval to implement the No. 10 HDS/CCR Capacity Increase Project.

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

Estimated emissions from the Petrozuata Syncrude Project affected equipment in tons per year are as follows:

			Contem-		
	Actual	Proposed	poraneous	Net	PSD de
<u>Pollutant</u>	Emissions	Emissions	Change (a)	Change	minimis
$PM_{10}$	36.2	61.3	+ 3.6	+ 28.7	15
SO <sub>2</sub>	171.2	258.7	- 78.8	+ 8.7	40
NOx	368.8	357.2	+ 52.1	+ 40.5	40
CO	81.6	160.9	+ 37.5	+ 116.8	100
VOC	7.1	12.1	- 81.1	- 76.1	40

(a) The Petrozuata Syncrude Project began in August 1999 and the construction of the project was completed in November 2000. The firing rates for Boilers B-6 and B-76001 will be increased for the project upon issuance of this PSD permit. The contemporaneous period is between 1994 and 2002.

 $PM_{10}$ ,  $SO_2$ ,  $NO_x$ , and CO emission increases from the Petrozuata Syncrude Project are above the Prevention of Significant Deterioration (PSD) significance levels. Contemporaneous changes from various projects during the 1994 - 2002 period net  $SO_2$  out of PSD review. It was determined by Permit PSD-LA-584 (M-2) that  $PM_{10}$ ,  $NO_x$ , and CO must undergo PSD analysis.

The FCC Riser Modification and Excel Paralubes Hydrocracker Capacity Increase projects are associated with the Petrozuata Syncrude Project. These projects will not increase any permitted emissions. The potential emission increases due to the projects have already been accounted for in the Petrozuata Syncrude Project.

The No. 10 HDS/CCR Capacity Increase Project is not associated with the Petrozuata Syncrude Project. It will affect six heaters (H-16001, H-16101, H-16102, H-16103, H-16104, and H-16105). However, all of the heaters will operate under the permitted limits. Each of the heaters is equipped with an ultra  $low-NO_x$  burner. Potential emission increases due to the project are:

PM <sub>10</sub>	SO <sub>2</sub>	$NO_x$	CO	VOC
7.6	13.5	43.4	19.9	1.8

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

The potential  $NO_x$  emission increase is over PSD de minimis and there are no other contemporaneous changes to net out  $NO_x$  from PSD review. Therefore, PSD review on  $NO_x$  emissions for the project is required.

#### TYPE OF REVIEW

The application was reviewed in accordance with PSD regulations for  $PM_{10}$ ,  $NO_x$ , and CO emissions. The selection of control technology based on the BACT analysis included consideration of control of toxic materials.

#### BEST AVAILABLE CONTROL TECHNOLOGY

 $PM_{10}$ ,  $NO_x$ , and CO emissions are above PSD significance levels and must undergo PSD analysis. Controls of these pollutants were analyzed using a "top down" approach.

Ultra low-NO $_{\rm x}$  burners (ULNBs) with an estimated emission rate of 0.06 lb NO $_{\rm x}$ /MM BTU constitute BACT for NO $_{\rm x}$  emissions from new or modified process heaters, except Heater H-1101, associated with the Petrozuata Syncrude Project. Heater H-1101 was physically modified in 1996, was designed with multiple chambers, and is equipped with ultra low-NO $_{\rm x}$  burners. The burners chosen for this heater produce a shorter flame length necessary to prevent flame impingement on the wall of the chambers. The stack tests performed in May 2001 show that the technology achieves a NO $_{\rm x}$  emission rate of 0.081 lb/MM BTU.

ULNBs were also determined as BACT to limit  $NO_x$  emissions from the sulfur recovery unit to 0.18 lbs/MM BTU. Design and proper operating practices were determined to be BACT for control of CO emissions from the sulfur recovery unit and affected process heaters. Design, proper operation, and burning clean fuel were determined to be BACT for  $PM_{10}$  emissions from the sulfur recovery unit and affected process heaters. A drift eliminator was determined to be BACT for control of  $PM_{10}$  from the cooling water tower.

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

#### AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed facility.

Screening dispersion modeling (ISCST3) indicates that the maximum ground level concentrations of  $PM_{10}$ ,  $NO_x$ , and CO are below the preconstruction monitoring exemption levels and the ambient significance levels. No preconstruction monitoring, increment analysis or refined modeling is required.

#### ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the proposed facility, nor will any Class I area be affected. No new permanent jobs will be created.

#### PROCESSING TIME

Application Received: July 10, 2000 Effective Completeness: April 26, 2002 Additional Information Dated: October 8, 2001,

> March 18 and 27, 2002, April 4, 11, and 25, 2002

#### PUBLIC NOTICE

A notice requesting public comment on the permits was published in The Advocate, Baton Rouge, and in the Lake Charles American Press, on July 31, 2002. The public notice was also sent to persons included in the LDEQ mailing list (completed July 30, 2002). Public hearings on the permits and on the environmental assessment statement associated with the permits were held on September 4, 2005 at the Council Chambers of Westlake City Hall, 1001 Mulberry Street, Westlake, Louisiana. The proposed permit was also submitted to US EPA Region VI and Texas Natural Resource Conservation Commission. All related comments have been addressed in "Basis for Decision" and "Public Comments Response Summary" attached.

PETROZUATA SYNCRUDE PROJECT MODIFICATION

LAKE CHARLES REFINERY, CONOCO INC.

WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538

PSD-LA-584 (M-3), APRIL 26, 2002

#### I. APPLICANT

Conoco Inc. 2210 Old Spanish Trail Westlake, Louisiana 70669

#### II. LOCATION

Conoco's Lake Charles Refinery is located at 2210 Old Spanish Trail, Westlake, north of Interstate 10 at Westlake. Approximate UTM coordinates are 473.4 kilometers east and 3,345.3 kilometers north in Zone 15.

#### III. PROJECT DESCRIPTION

By implementing the Petrozuata Syncrude Project, the Refinery would have capacity to process Petrozuata Syncrude from the Orinoco Tar Belt in Venezuela, the largest heavy oil deposit found in the world. The ability to process this syncrude will secure a guaranteed crude supply through joint venture agreements, but will increase production of heavy products such as diesel, gas oil, light cycle oil, slurry oil, and cracked distillate.

Petrozuata Syncrude Project completed construction in November 2000. Conoco recalculated the steam demand and/or firing rates of boilers and heaters, and incorporated two additional projects associated with the Petrozuata Syncrude Project: The Fluid Catalytic Cracker (FCC) Riser Modification and Excel Paralubes Hydrocracker Capacity Increase Projects. Conoco also requests approval to implement the No. 10 HDS/CCR Capacity Increase Project.

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3), APRIL 26, 2002

Estimated emissions from the Petrozuata Syncrude Project affected equipment in tons per year are as follows:

			Contem-		
	Actual	Proposed	poraneous	Net	PSD de
Pollutant	<u>Emissions</u>	Emissions	Change (a)	Change	minimis
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(a) The Petrozuata Syncrude Project began in August 1999 and the construction of the project was completed in November 2000. The firing rates for Boilers B-6 and B-76001 will be increased for the project upon issuance of this PSD permit. The contemporaneous period is between 1994 and 2002.

 $PM_{10}$ ,  $SO_2$ ,  $NO_x$ , and CO emission increases from the Petrozuata Syncrude Project are above the Prevention of Significant Deterioration (PSD) significance levels. Contemporaneous changes from various projects during the 1994 - 2002 period net  $SO_2$  out of PSD review. It was determined by Permit PSD-LA-584 (M-2) that  $PM_{10}$ ,  $NO_x$ , and CO must undergo PSD analysis. Emissions of these pollutants will be controlled by Best Available Control Technology.

The FCC Riser Modification and Excel Paralubes Hydrocracker Capacity Increase projects are associated with the Petrozuata Syncrude Project. These projects will not increase any permitted emissions. The potential emission increases due to the projects have already been accounted for the Petrozuata Syncrude Project.

The No. 10 HDS/CCR Capacity Increase Project is not associated with the Petrozuata Syncrude Project. It will affect six heaters (H-16001, H-16101, H-16102, H-16103, H-16104, and H-16105). However, all of the heaters will operate under the permitted limits. Each of the heaters is equipped with ultra low-NO $_{\rm x}$  burners.

PETROZUATA SYNCRUDE PROJECT MODIFICATION

LAKE CHARLES REFINERY, CONOCO INC.

WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538

PSD-LA-584 (M-3), APRIL 26, 2002

Potential emission increases due to the project are:

PM <sub>10</sub>	SO <sub>2</sub>	$NO_x$	CO	VOC
7.6	13.5	43.4	19.9	1.8

The potential  $NO_x$  emission increase is over PSD de minimis and there are no other contemporaneous changes to net out  $NO_x$  from PSD review. Therefore, PSD review on  $NO_x$  emissions for the project is required.

#### Revision of PSD-LA-533 (M-3)

This PSD permit also serves to modify the applicable requirements on Boilers No. 5 and No. 6 in PSD-LA-533 (M-3), dated April 29, 1994. Since the terms of PSD-LA-533 (M-3) on Boilers No. 5 and No. 6 have been incorporated into this PSD permit, a separate revision is not required for this change. Specific Condition 6 of Permit PSD-LA-533 (M-3), which limits the firing rates of Boilers No. 5 and No. 6, was first established in 1992. It limits  $NO_x$  potential to emit (PTE) so that the  $NO_x$  emission increases from the Gasoline RVP Reduction Project in 1992 would be below the PSD significant level of 40 tons per year. Both boilers are equipped with low Conoco will install a flue gas recirculation NO<sub>x</sub> burners. (FGR) system (determined as BACT) on the Boiler No. 6. With the improved  $NO_x$  emission control on the Boiler No. 6, the combined  $NO_x$  PTE from these two boilers will be physically limited to less than the  $NO_x$  emission limit imposed by Specific Condition 6. Thus, removal of this specific condition would not trigger PSD review on  $NO_{\boldsymbol{x}}$  for the Gasoline RVP Reduction Project.

By this PSD permit, Specific Condition 6 of Permit PSD-LA-533 (M-3) is rescinded. Boilers No. 5 and No. 6 are authorized to operate year round (8760 hours/year) at maximum firing rates. Emissions from these boilers are limited by the Specific Condition 2 of this PSD permit and related Part 70 permit.

PETROZUATA SYNCRUDE PROJECT MODIFICATION

LAKE CHARLES REFINERY, CONOCO INC.

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PSD-LA-584 (M-3), APRIL 26, 2002

All other conditions of PSD-LA-533 (M-3) permit will remain the same.

#### IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for modified major sources requires review under PSD regulations, 40 CFR 52.21. PSD permit reviews of proposed new or modified major stationary sources require the following analyses:

- A. A determination of the Best Available Control Technology (BACT);
- B. Analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;
- C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);
- D. An analysis of the PSD increment consumption;
- E. An analysis of the source related growth impacts:
- F. An analysis of source related impacts on soils, vegetation, and visibility;
- G. A Class I Area impact analysis; and
- H. An analysis of the impact of toxic compound emissions.

#### A. BEST AVAILABLE CONTROL TECHNOLOGY

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major source in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3), APRIL 26, 2002

stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes.

PSD-LA-584 (M-2) authorized Conoco to implement the Petrozuata Syncrude Project. During the construction of the project, Conoco recalculated the steam balance. The firing rates and emissions from heaters and boilers will be changed, accordingly. Because the method of operation (increase firing rate which causes collateral emission increase) of Boiler B-6 and B-76001 will be changed, a BACT analysis is required for  $PM_{10}$ ,  $NO_x$ , and CO emissions.

Heaters H-16001, H-16101, H-16102, H-16103, H-16104, and H-16105 will be affected by the No. 10 HDS/CCR Capacity Increase Project. Actual firing rates of these heaters will be increased (increase the utilization of the capacities of the heaters), which cause  $\mathrm{NO}_{\mathrm{x}}$  emissions increase more than the PSD significance level. No physical modification on the heaters is required and the permitted emission limits for the heaters will not be changed. A BACT analysis is not required for emissions from these heaters.

BACT analysis for emissions from the Petrozuata Syncrude Project affected points are given below:

#### BACT analysis for NO<sub>x</sub> emissions from Boilers B-6, B-76001

Selective catalytic reduction (SCR), also known as thermal  $\text{DeNO}_x$ , is the most effective post-combustion  $\text{NO}_x$  control method considered. In this process, a reducing agent is introduced into the flue gas, up stream of a catalyst bed, which is maintained at elevated temperature. With ammonia as the reducing agent, the thermal  $\text{DeNO}_x$  process can reduce over 80% of  $\text{NO}_x$  emissions. However, ammonia emissions are a negative

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side effect of the technology. Implementing SCR would require substantial capital expenditures and additional energy to keep the catalyst bed at high temperatures.

Selective non-catalytic reduction (SNCR) is a post-combustion process in which a reagent mixture is injected into the elevated temperature flue gas stream. Using urea solution as reagent, the  $NO_xOUT^{\text{IM}}$  process converts  $NO_x$  emissions into water, nitrogen, and carbon dioxide. The process may release ammonia during the incomplete decomposition of urea. Additional energy is required to increase flue gas temperature to process conditions.

Low  $NO_x$  burners are designed for distributed air flow, distributed fuel input, and minimal flame length to optimize equipment conditions and minimize  $NO_x$  levels. The amount of  $NO_x$  formed during combustion is influenced by time, temperature, and oxygen concentration. Low  $NO_x$  burners reduce  $NO_x$  formation by lowering flame temperatures. No additional energy is required.

The air/natural gas mixture fed to the combustion chambers can be diluted with hot flue gas to reduce  $NO_x$  emissions via lowering flame temperature and suppressing partial oxygen vapor pressure. This technique is known as flue gas recirculation (FGR). Thirty percent of total flue gas can be recirculated to reduce  $NO_x$  by as much as 75 percent. FGR will reduce the equipment efficiency and additional energy is required to recirculate the flue gas.

 $SCONO_x$  technology operates at a temperature range of  $300^\circ$  F to  $700^\circ$  F. It utilizes a single catalyst system to control both carbon monoxide and  $NO_x$ . CO is oxidized to carbon dioxide while  $NO_x$  is converted to  $NO_2$ , which is adsorbed onto the catalyst surface. This new technology has only been demonstrated for gas turbines.

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XONON is a flameless catalytic system, which limits the temperature in the combustor below the  $NO_{\chi}$  formation threshold. The XONON system has been tested for small gas turbines.

The high cost effectiveness rejects SCR as a feasible BACT option.  $SCONO_x$  and XONON are in the development phase for gas turbines. These options were rejected as technically infeasible.

The remaining option is low-NO $_{\rm x}$  burners (LNB) in combination with flue gas recirculation (FGR). This technique is also known as ultra low-NO $_{\rm x}$  burners (ULNB). The ULNB are selected as BACT to maintain maximum NO $_{\rm x}$  emissions from these boilers and heaters at 0.06 lbs/MM BTU.

#### BACT analysis for CO emissions from Boilers B-6 and B-76001

Thermal oxidation is the first control option considered for CO emissions. Flue gas from combustion equipment could be routed through the thermal oxidizer where the gas will be heated to an operating range of 1,200 - 2,000° F. At this temperature, carbon monoxide and VOC will be burned to carbon dioxide. Raising exit gas to the appropriate temperature range will require a significant amount of energy and generate a large quantity of secondary emissions.

Catalytic combustion of carbon monoxide is another control option. Flue gas can be burned in a catalyst bed at 650 - 800°F. Approximately 90 percent of the carbon monoxide would be converted to carbon dioxide. Additional energy is required to heat the flue gas and send it through the catalyst bed. The catalyst bed, containing heavy metals, requires replacement and recycling and/or disposal.

CO emissions can also be controlled using good equipment design, gaseous fuels for good mixing, and proper combustion techniques. These control options are usually less efficient

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than the oxidation technologies, but they have minimal environmental and economic impact.

BACT for  $NO_x$  is also considered BACT for CO, since optimizing burners for CO influences  $NO_x$  emissions. The environmental impacts, such as secondary emissions, hazardous waste (spent catalyst), eliminated thermal and catalytic oxidizers as BACT for CO emissions from Boilers B-6 and B-76001.

Since ULNB are determined as BACT for  $NO_x$ , good design, using gaseous fuels for good mixing, and proper operating techniques are determined to be BACT for CO emissions from Boilers B-6 and B-76001.

#### BACT analysis for PM<sub>10</sub> from Boilers B-6 and B-76001

Control techniques for  $PM_{10}$  include cyclones, electrostatic precipitators (ESP), fabric filters, good combustion practices and use of clean fuels.

Cyclones collect particulate laden gases and force them to spin in a vortex resulting in a change in direction of the particles. The particles then drop out of the gas stream. Cyclones are generally used to reduce dust loading and collect large particles.  $PM_{10}$  emissions of very low concentrations from the incinerator and process heaters would not be effectively captured in a cyclone.

ESPs operate by electrically charging particles and then separating them from the gas stream with a collector of opposite charge. High voltage direct current discharge electrodes, typically wires, are suspended in the gas stream to impose a negative charge on the particles. The particles are driven to positive collecting electrodes (typically plates) located opposite the wires. Particles are removed from the collection plates by rapping devices that strike the collection and discharge electrodes. The dust falls into hoppers and is conveyed to a disposal system. ESPs are usually

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used to capture coarse particles at high concentrations. Small particles at low concentrations cannot be effectively collected by an ESP.

In the fabric filter or baghouse, particle laden gas passes through the filter bags, retaining particles on the filters. The filters are periodically cleaned via shaking, reverse air flow, or pulse jet cleaning. During cleaning, particles are deposited in a hopper for subsequent disposal. Fabric filters are used for medium and low gas flow streams with high particulate concentrations.

Particulate emissions from Boilers B-6 and B-76001 will be  $0.0030~\rm grains/scf$  and  $0.0042~\rm grains/scf$ , respectively, which are lower than the performance guarantee of most cyclones, ESPs, or baghouses. Using cyclones, baghouses, or ESPs to control  $\rm PM_{10}$  emissions from these boilers is impractical. The remaining options are good combustion practices and using clean fuel gas. These are determined as BACT for particulate emissions from these boilers.

#### BACT determined by PSD-LA-584 (M-2)

Ultra low-NO $_{\rm X}$  burners (ULNBs) with an estimated emission rate of 0.06 lb NO $_{\rm X}$ /MM BTU constitute BACT for NO $_{\rm X}$  emissions from new or modified process heaters associated with the project. (Note: Heater H-1101 was physically modified in 1996, was designed with multiple chambers, and is equipped with ultra low-NO $_{\rm X}$  burners. The burners chosen for this heater product a shorter flame length necessary to prevent flame impingement on the wall of the chambers. The stack tests performed in May 2001 show that the technology achieves a NO $_{\rm X}$  emission rate of 0.081 lb/MM BTU.)

ULNBs were also determined as BACT to limit  $NO_x$  emissions from the sulfur recovery unit to 0.18 lbs/MM BTU. Design and proper operating practices were determined to be BACT for control of CO emissions from the sulfur recovery unit and

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affected process heaters. Proper design and operation, and burning clean fuel were determined to be BACT for  $PM_{10}$  emissions from the sulfur recovery unit and affected process heaters. A drift eliminator was determined to be BACT for control of  $PM_{10}$  from the cooling water tower.

The burners of No. 7 HDS Heater H-3232, operated under PSD-LA-533 (M-3) and No.7 HDS HVGO Heater H-3201, operated under PSD-LA-390, were replaced with ultra low-NO $_{x}$  burners (ULNB) to limit NO $_{x}$  emissions to 0.06 lbs/MM BTU or less. The ULNB were determined as BACT for NO $_{x}$  emissions from these heaters. This BACT determination and NO $_{x}$  emission limits will replace the BACT and corresponding limits set by PSD-LA-533 (M-3) and PSD-LA-390.

#### B. ANALYSIS OF EXISTING AIR QUALITY

PSD regulations require an analysis of existing air quality for those pollutant emissions, which increase significantly from a proposed major source.  $PM_{10}$ ,  $NO_x$ , and CO are pollutants of concern in this case.

Screening dispersion modeling (ISCST3) of  $PM_{10}$  emissions from the proposed project indicates the 24-hour and annual average of maximum off-site ground level concentrations are 1.75 and 0.069  $\mu g/m^3$ , respectively, which are below the modeling significance impact levels of 5 and 1  $\mu g/m^3$ . The 24-hour average concentration is also below the preconstruction monitoring exemption level of 10  $\mu g/m^3$ . Preconstruction monitoring, increment analysis, and refined modeling are not required.

Screening dispersion modeling of CO emissions from the proposed project indicates the 1-hour and 8-hour average of maximum off-site ground level concentrations are 115.26 and 53.43  $\mu g/m^3$ , which are below the modeling significance impact levels of 2,000 and 500  $\mu g/m^3$ . The 8-hour average concentration is also below the preconstruction monitoring

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exemption level of 575  $\mu g/m^3$ . Neither preconstruction monitoring, nor increment analysis, nor refined modeling is required.

Screening dispersion modeling of  $NO_x$  emissions from the proposed project indicates the annual average of maximum offsite ground level concentrations is 0.86  $\mu g/m^3$ , which is below the modeling significance impact levels of 1  $\mu g/m^3$  and the preconstruction monitoring exemption level of 14  $\mu g/m^3$ . Neither preconstruction monitoring, nor increment analysis, nor refined modeling is required. The Air Quality Analysis is shown in Table II.

#### C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Refined modeling was not required for emissions of  $PM_{10}$ ,  $NO_x$  and CO.

#### D. PSD INCREMENT ANALYSIS

Increment analysis was not required for emissions of  $PM_{10}$ ,  $NO_x$  and CO.

#### E. SOURCE RELATED GROWTH IMPACTS

Secondary growth effects included 1,000 temporary construction related jobs during the construction phase of the units. The project will not create any permanent jobs.

#### F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

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#### G. CLASS I AREA IMPACTS

Breton National Wildlife Area, the nearest Class I area, is more than 250 miles from the site, precluding any significant impact.

#### H. TOXIC IMPACT

The selection of control technology based on the BACT analysis included consideration of control of toxic emissions.

#### V. CONCLUSION

The Office of Environmental Services has made a preliminary determination to approve the implementation of the Petrozuata Syncrude Project (including the associated Fluid Catalytic Cracker Riser Modification and Excel Paralubes Hydrocracker Capacity Increase projects) and the No. 10 HDS/CCR Capacity Increase Project at the Lake Charles Refinery, in Westlake, Calcasieu Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary, the Preliminary

#### SPECIFIC CONDITIONS

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated March 26, 2002 and subject to other specified conditions. Specifications submitted are contained in the application and Emissions Inventory Questionnaire dated July 10, 2000, as well as additional information dated November 15, 2000, October 8, 2001, and March 18, April 4, 11, and 25, 2002.

**Maximum Allowable Emission Rates** 

Emission	Description	Units	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO
Point No				-	^	
EP-23	High Pressure Boiler (B-6),	lb/MM BTU	-		0.06	
	268 MM BTU/hr	lbs/hr	2.0	*	16.1	5.4
		TPY	6.0	•	47.3	15.8
EP-37	No. 3 CTU Heater (H-1101),	lb/MM BTU	-		0.081	_
	264 MM BTU/hr	lbs/hr	2.0	*	25.7	5.3
		TPY	8.8		93.7	23.1
EP-55	No. 7 HDS HVGO Heater (H-3201),	lb/MM BTU	-		0.06	-
	23 MM BTU/hr	lbs/hr	1.1	*	1.40	0.46
	•	TPY	4.8		6.0	2.0
EP-63	No. 4 HDS Heater (H-1201),	lb/MM BTU	-		0.06	_
	36.6 MM BTU/hr	lbs/hr	0.28	*	2.2	0.73
		TPY	1.2		9.6	3.2
EP-71	No. 3 Vacuum Unit Heater (H-1103),	lb/MM BTU	-		0.06	-
	100 MM BTU/hr	lbs/hr	0.76	*	6.0	2.0
		TPY	3.3		26.3	8.8
EP-72	No. 4 HDS Heater (H-1202),	Ib/MM BTU			0.06	-
	60 MM BTU/hr	lbs/hr	0.46	*	3.6	1.2
		TPY	2.0		15.8	5.3
EP-73	No. 7 HDS Heater (H-3232),	lb/MM BTU	-		0.06	-
	23 MM BTU/hr	lbs/hr	0.17	*	1.40	0.46
		TPY	0.8		6.0	2.0
EP-104	No. 2 VCU Feed Heater (H-20002),	Ib/MM BTU	-		0.038	-
	150 MM BTU/hr	lbs/hr	1.1	*	6.8	3.0
	•	TPY	5.0		25.0	13.1
EP-105	No. 10 HDS Charge Heater (H-	lb/MM BTU	-		0.051	-
	16001), 20 MM BTU/hr	lbs/hr	0.15	*	1.0	0.4
		TPY	0.7		4.5	1.8
EP-106	No 10 CCR Heaters (H-16101, 2, 3,	Ib/MM BTU	-		0.043	-
	4, 5), 460 MM BTU/hr	lbs/hr	3.5	*	19.8	9.2
		TPY	15.3		86.6	40.3

#### SPECIFIC CONDITIONS

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Emission Point No	Description	Units	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO
EP-109	High Pressure Boiler (B-76001),	lb/MM BTU	-		0.06	
	418 MM BTU/hr	lbs/hr	3.2	*	13.8	8.4
		TPY	11.6		50.3	30.5
EP-111	Sulfur Recovery Unit,	lb/MM BTU	-		0.18	-
	404,000 scf/hr	lbs/hr	1.5	*	7.5	12.4
		TPY	4.3		22.0	36.3
EP-143	No. 4 CTU Heater (H-4050),	lb/MM BTU	-		0.032	-
	237 MM BTU/hr	lbs/hr	1.8	*	9.1	4.7
		TPY	7.9		33.2	20.8
EP-153	Cooling Towers (Y-4 & Y-5),	. lbs/hr .	1.3	*	_	-
	50,800 gpm	TPY	5.6			

The following emission points were included in PSD-LA-584 (M-1) but are not affected by the Petrozuata Syncrude Project.

EP-17	No. 2 HDS Heater (H-24),	lb/MM BTU		-	0.17	
	38 MM BTU/hr	lbs/hr	0.3	1.0	6.5	*
		TPY	1.3	4.5	28.3	
EP-41	FCC Regenerator	lbs/hr	17.8	319.4	129.6	*
		TPY	56.9	1229.9	490.6	
EP-54	No. 6 HDS Heater (H-3101),	Ib/MM BTU	-	-	0.13	
	20 MM BTU/hr	lbs/hr	0.2	0.5	2.6	*
		TPY	0.7	2.4	11.4	
EP-101	HDC Hydrogen Heater (H-11001),	1b/MM BTU	-	-	0.03	
	75 MM BTU/hr	lbs/hr	0.6	2.0	2.3	*
		TPY	2.2	8.0	8.8	
EP-102	HDW/HDF Reactor Charge Heater	lb/MM BTU	-	-	0.03	
	(H-12001), 34.8 MM BTU/hr	lbs/hr	0.3	1.0	1.0	*
		· TPY	1.0	3.6	3.9	
EP-103	HDW/HDF Reactor Charge Heater	lb/MM BTU	-	-	0.03	
	(H-12003), 48.8 MM BTU/hr	lbs/hr	0.4	1.3	1.5	*
		TPY	1.6	5.7	6.3	
EP-110	LOHC Flare 1 (PU-76002),	Ib/MM BTU	-	-	0.08	
	15.82 MM BTU/hr	lbs/hr	Neg.	3.1	1.2	. *
	••	TPY	Neg.	1.1	5.0	
EP-112	Cooling Tower (Y-6),	lbs/hr	1.0	-	_	*
	40,000 gpm	TPY	4.4	•		
EP-118	HDC Atmospheric Tower Heater (H-	lb/MM BTU	-	-	0.03	
	11002), 52.8 MM BTU/hr	lbs/hr	0.4	1.4	1.6	*
		TPY	1.1	3.8	4.2	
EP-119	HDC Vacuum Tower Heater (H-	lb/MM BTU	-	-	0.03	
	11003), 39 MM BTU/hr	lbs/hr	0.3	1.1	1.2	*
		TPY	0.5	1.8	2.0	

<sup>\*</sup> The pollutant is not included in the PSD analysis for the related project.

#### SPECIFIC CONDITIONS

## PETROZUATA SYNCRUDE PROJECT MODIFICATION LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

2. To ensure compliance with permitted emission limits, permittee shall perform stack tests for NO<sub>x</sub> and CO emissions from the process heaters (H-1101, H-3201, H-1201, H-1103, H-1202, H-3232, H-4050), high pressure boilers (B-6, B76001), and Sulfur Recovery Unit, Emission Points EP-37, EP-55, EP-63, EP-71, EP-72, EP-73, EP-104, EP-143, EP-23, EP-109, and EP-111, using test methods and procedures from New Source Performance Standards, 40 CFR 60, Appendix A, Method 7E-Determination of Nitrogen Oxides Emissions from Stationary Sources and Method 10-Determination of Carbon Monoxide emissions from Stationary Sources.

(Note: Stack tests on the Sulfur Recovery Unit and all the process heaters were already conducted in April, May, and June 2001.)

3. Permittee shall continuously monitor and record flue gas oxygen concentrations and firebox temperatures in accordance with the attachment "Use of flue gas oxygen monitors for combustion controls" for the boilers and heaters, Emission Points EP-23, EP-37, EP-55, EP-63, EP-71, EP-72, EP-73, EP-104, EP-109, and EP-143.

#### USE OF FLUE GAS OXYGEN MONITORS FOR COMBUSTION CONTROLS

Within the time limits specified in General Condition VIII of this permit, the permittee shall determine the emissions of nitrogen oxides  $(NO_x)$  and carbon monoxide (CO) from the permitted combustion device in accordance with test methods and procedures set out in 40 CFR 60, Appendix A, Methods 7E\* and 10 respectively. These emission determinations shall be made at:

- Maximum design capacity; and
- 2) Normal operational load.

The permittee shall install a continuous oxygen monitor in the flue gas of the permitted combustion device which meets the requirements of 40 CFR Part 60, Appendix B, Performance Specification 3. A range of excess air and combustion temperature shall be established. The range shall be the oxygen content associated with  $NO_x$  and CO emission rates specified for BACT in Table 2 of this permit. The range shall be determined such that the appropriate  $NO_x$  and CO limits are not exceeded.

Combustion temperature and oxygen content shall be continuously recorded. Alarms shall be set to sound when the flue gas oxygen content or combustion temperature are outside of this established range and corrective action shall be taken any time an alarm is sounded. These records and records of alarm and corrective actions shall be maintained on site and available for inspection by the Office of Environmental Services, Surveillance Division.

Should any combustion equipment modifications be made such as different type burners, combustion air relocation, fuel conversion, tube removal or addition, etc., emissions correlations as described above shall be conducted within 60 days of attaining full operation after such modification. Results of all emission determinations shall be sent to the permitting authority within 45 days after completion of the tests.

A properly installed and calibrated continuous  $NO_x$  monitor may be substituted for Method 7E.

- This permit is issued on the basis of the emissions reported I. in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The attached Annual Emission Rates listing and/or Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Conditions or, where included, Tables 2 and 3 of the Permit. The synopsis is based on the application and Emission Inventory Questionnaire dated July 10, 2000, as well as additional information dated October 8, 2001 and March 18 & 27, April 4, 11, & 25, 2002.
- IV. This permit shall become invalid, for the sources not constructed, if:
  - A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
  - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

- V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Permits Division.
- VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Environmental Technology Division.
- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up restart-up after modification). The Office Environmental Assessment, Environmental Technology Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Environmental Technology Division within sixty (60) days after the complete testing. As required by 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Surveillance Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to.

malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Surveillance Division with a written report as specified below.
  - A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33:I.Chapter 39.
  - B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.
  - C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs 1 or 2 above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:
    - 1. Report by June 30 to cover January through March
    - 2. Report by September 30 to cover April through June
    - 3. Report by December 31 to cover July through September
    - 4. Report by March 31 to cover October through December
  - D. Each report submitted in accordance with this condition shall contain the following information:
    - Description of noncomplying emission(s);
    - 2. Cause of noncompliance;
    - Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
    - 4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
    - 5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

- E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33:I.Chapter 39, LAC 33:III.Chapter 9, and LAC 33:III.5107.
- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
  - A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
  - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
  - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and
  - D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
- XIII. If samples are taken under Section XII.D above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
- XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be

notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

- XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919.E as well as notification requirements specified under LAC 33:III.927.
- XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Permits Division, within ninety (90) days after the event, to amend this permit.
- XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:
  - 1. Generally be less than 5 TPY
  - 2. Be less than the minimum emission rate (MER)
  - 3. Be scheduled daily, weekly, monthly, etc., or
  - 4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Section La. Dept. of Environmental Quality Post Office Box 82282 Baton Rouge, Louisiana 70884-2282

XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two

conditions.

# TABLE I BACT COST SUMMARY

## PETROZUATA SYNCRUDE PROJECT LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

<b>Emission Point</b>	Control Technology	Availability/	Negative	Control	Emissions	Annualized	Cost	Notes
		Feasibility	Impacts	Efficiency	Reduction	Cost	Effectiveness	
			(a)		(TPY)	(\$)	(\$/Ton)	
EP-23	SCR	Yes/No	1, 2, 3	%06	75.1	614,198	8,183	
EP-109	SCR	Yes/No	1, 2, 3	806	54.2	458,659	8,469	
EP-23 & EP-109   ULNB	ULNB	Yes/Yes		0.06 lbs/MM BTU	M BTU			Selected
Notes: (a) Negativ	Notes: (a) Negative impacts: 1 - economic, 2	2 - environmental, 3 - energy, 4 - safety.	tal, 3 - energ	y, 4 - safety.				
EP-23 - Bo	EP-23 - Boiler B-6, EP-109 - Boiler B-76001	B-76001.						
SCR - Sele	SCR - Selective Catalytic Reduction,	ULNB - Ultra Low-NO, Burner	Low-NO, Bu	rner.				-

## TABLE II AIR QUALITY ANALYSIS SUMMARY

## PETROZUATA SYNCRUDE PROJECT LAKE CHARLES REFINERY, CONOCO INC. WESTLAKE, CALCASIEU PARISH, LOUISIANA, AI NO. 2538 PSD-LA-584 (M-3)

Pollutant	Averaging	Averaging Preliminary	Significant	Current	Level of	L	Modeled +	National	Modeled PSD	Allowable
	Period		Monitoring	Monitored				Ambient Air	Increment	Class II PSD
		Сопс.	Conc.		Impact	Сопс.		Quality	Consumption	Increment
		(g/m³)	(g/m³)	(g/m³)	(g/m³)	(g/m³)	(g/m³)	Standard (g/m³)	(g/m³)	(g/m³)
Particulate	24-hour	1.75	10	NR	5	NR	NR	150	NR	30
Matter	Annual	690.0	_	NR	1	NR	N.R.	50	NR	17
NOx	Annual	0.86	14	NR	1	Z.	NR.	100	NR	25
93	1-hour	115.26	-	NR	2,000	NR.	N.	40,000	NR	
	8-hour	53.43	575	NR	200	NR.	NR	10,000	NR	
NR = Not Required	Required									

## LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY OFFICE OF ENVIRONMENTAL SERVICES BASIS FOR DECISION

AREAS A, B, C, D, AND EXCEL PARALUBES CONOCO INC., LAKE CHARLES REFINERY, AI. NO. 2538 WESTLAKE, CALCASIEU PARISH, LOUISIANA

The Louisiana Department of Environmental Quality (LDEQ), Office of Environmental Services, Permits Division, through this decision issues to Conoco Inc., Lake Charles Refinery five separate Part 70 Permits and one Prevention of Significant Deterioration (PSD) permit.

For the proposed modifications at Lake Charles Refinery, the LDEQ finds that as a part of the "IT Requirements," adverse environmental impacts have been minimized or avoided as much as possible consistently with the public welfare. Save Ourselves V. La. Envtl. Control Comm'n, 452 So.2d 1152, 1157 (La. 1984). To make this determination, the LDEQ finds that Conoco, Inc. complied with all applicable federal and state statutes and regulations. Additionally, the LDEQ finds that Conoco, Inc. met the alternative sites and mitigation measures requirements of Save Ourselves. Id. at 1157.

After the LDEQ determined that adverse environmental impacts had been minimized or avoided to the maximum extent possible, it balanced social and economic factors with environmental impacts. Notably, "the [Louisiana] constitution does not establish environmental protection as an exclusive goal, but requires a balancing process in which environmental costs and benefits must be given full and careful consideration along with economic, social and other factors." (Brackets added.) Id. Accordingly, the LDEQ finds that the social and economic benefits of the proposed modification will outweigh greatly its adverse environmental impacts.

The details of the LDEQ's reasoning are set forth below<sup>2</sup> and in the following discussion:

The "IT Requirements" or "IT Questions" are five requirements [see Save Ourselves v. Envtl. Control Comm'n, 452 So.2d at 1152, 1157 (La. 1984)] that both the permit applicant and the LDEQ consider during certain permit application processes. Although the five requirements have recently been expressed as three requirements (see Rubicon Inc., 670 So.2d at 475, 483 (La. App. 1 Cir 1996), rehearing denied), the requirements remain basically the same whether stated as five or as three. The "IT Requirements" must satisfy the issues of whether:

<sup>1)</sup> the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible;

<sup>2)</sup> a cost benefit analysis of the environment impact costs balanced against the social and economic benefits of the project demonstrate that the latter outweighs the former;

there are alternative projects or alternative sights or mitigating measures, which would offer more protection to the environment than the proposed project without unduly curtailing nonenvironmental benefits to the extent applicable.

<sup>&</sup>lt;sup>2</sup>Any finding of fact more appropriately designated as a conclusion of law shall be considered also a conclusion of law; and any conclusion of law more appropriately designated as a finding of fact shall be considered also as a finding of fact.

#### **FINDINGS OF FACTS**

#### I. BACKGROUND:

Conoco Inc., Lake Charles Refinery is a fully integrated petroleum refinery facility. The refinery processes crude oils into chemical and petrochemical feedstock, gasoline, heating oil, residual fuels, petroleum coke, lube oils, and other miscellaneous products. To refine the crude, it utilizes crude-topping units, crude vacuum units, a fluid catalytic cracking unit, an alkylation unit, a polymerization unit, an MTBE unit catalytic reformers, desulfurization units, petroleum coking units, a calcining unit, sulfur recovery units, a hydrodewaxer unit, a hydrofinisher unit and associated infrastructure including plant utilities. The Lake Charles Refinery is organized into Area A, Area B, Area C, Area D, and the Excel Paralubes. The refinery is classified as a major source of emissions in accordance with LAC 33:III.502.

In 1999, Conoco, Inc. proposed the Petrozuata Syncrude Project as a modification of the Lake Charles Refinery. This project would enable the refinery to process Petrozuata syncrude from the Orinoco Tar Belt in Venezuela (the largest heavy oil deposit found in the world). The ability to process this syncrude (a mixture of virgin crude and cutter stock) would ensure a guaranteed crude supply through joint venture agreements and increase production of heavy products such as diesel, gas oil, light cycle oil, slurry oil, and cracked distillate. The project, along with some other changes to the refinery, was approved under a Prevention of Significant Deterioration (PSD) permit PSD-LA-584 (M-2) and Part 70 Permits 2623-V0, 2625-V0, 2626-V0, and 2627-V0, issued August 12, 1999.

Conoco Inc. submitted applications for reconciliation of the Prevention of Significant Deterioration (PSD) Permit and Part 70 Construction and Operating Permits to include changes in emission estimates associated with steam demand from boilers and the projects affected heaters, a realignment and consolidation of storage tanks with the existing caps, and other miscellaneous administrative amendments. The No. 10 Hydrodesulfurizer/Catalytic Reformer (HDS/CCR) Capacity Increase Project and the Phase I of the Low Sulfur Gasoline Project are also included in the permit modifications. It was determined by Permit PSD-LA-584 (M-2) that PM<sub>10</sub>, NO<sub>x</sub>, and CO must undergo PSD analysis for the Petrozuata Syncrude Project. The No. 10 HDS/CCR Capacity Increase Project triggered PSD analysis for NO<sub>x</sub>, however, BACT analysis is not required since the project will only increase the utilization of six (6) existing heaters. The emissions from these heaters will not exceed the presently permitted limits. Potential emission increases associated with Phase I of the Low Sulfur Gasoline Project are not significant.

A notice requesting public comment on the proposed project was published in the Advocate, Baton Rouge, Louisiana, on July 31, 2002, and in the Lake Charles American Press, Lake Charles, Calcasieu Parish, on July 31, 2002. A public hearing on the permits and a second public hearing on the Environmental Impact Statement, were held on Wednesday, September 4, 2002, in the Council Chambers of the Westlake City Hall, 1001 Mulberry Street, Westlake, Louisiana. The proposed PSD Permit and Part 70 (Title V) Operating Permits were also submitted to the U.S. EPA Region VI and the Texas Natural Resource Conservation Commission for review and comment.

#### II. PUBLIC COMMENT:

The Louisiana Department of Environmental Quality received written and oral comments during the public hearing.

#### III. PUBLIC COMMENTS RESPONSE SUMMARY:

A "Public Comment Response Summary" was prepared for all significant comments and is attached.

### IV. ALTERNATE SITES: Are there alternative sites, which would offer more protection to the environment than the proposed facility site without unduly curtailing nonenvironmental benefits?

The LDEQ recognizes that the concepts of alternative sites, alternative projects, and mitigative measures are closely interrelated and overlap, each concept is addressed separately in this document for purposes of emphasis and clarity. However, the LDEQ stresses the interrelation of the three; for example, the choice of a particular site could involve mitigative factors and possibly alternative project considerations; likewise, selection of an alternative project could invoke mitigative factors, and often site selection. Apparently, the First Circuit Court of Appeal has also recognized this interrelationship and is now considering the three requirements as one. Matter of Rubicon, Inc., 95-0108 (La. App. 1 Cir. 2/14/96); 670 So.2d 475, 483.

Therefore, because of this interrelationship, the LDEQ adopts any and all of its findings on all of the three factors under each of the specific designated areas -- alternate sites (Section IV), alternative projects (Section V), and mitigative measures (Section VI)

Because Conoco's Lake Charles Refinery is an existing facility and because these permits are for modification of existing processes and equipment, a traditional alternative site analysis was not appropriate here. Nevertheless, in considering the permit applications, the LDEQ closely reviewed the existing operations at the site.

Conoco, Inc.'s Lake Charles Refinery is an existing facility constructed under grandfathered status, which commenced operation in 1944 prior to establishment of the Louisiana Air Control Commission in June 1969.

This project involves modification of existing equipment and not construction of a new facility. As the Lake Charles Refinery is an existing facility and the project will affect only existing process units and equipment, the Lake Charles Refinery is the only viable site for the proposed project. The environment, social, economic, and other benefits associated with the projects are described under VII. COST/BENEFITS ANALYSIS (BALANCING): SOCIAL AND ECONOMIC BENEFITS.

CONCLUSION: For the foregoing reasons, the LDEQ finds there are no alternative sites, which would offer more protection to the environment than the proposed site without curtailing nonenvironmental benefits.

### V. ALTERNATIVE PROJECTS: Are there alternative projects, which would offer more protection to the environment than the proposed facility without unduly curtailing nonenvironmental benefits?

The LDEQ finds that the project as proposed offers more protection to the environment than any other possible alternative without unduly curtailing nonenvironmental benefits. Additionally, the LDEQ recognizes that selection of the most environmentally sound projects usually also serves as a mitigative measure, since the two considerations overlap considerably.

Conoco chose to make modifications to the refinery primarily to process Petrozuata Syncrude from the Orinoco Tar Belt (the largest heavy oil deposit in the world) located in Venezuela. These improvements have positioned the refinery to efficiently meet market demand, which is a key to the long-term viability of the Lake Charles Refinery.

To refine the crude, Conoco utilizes crude-topping units, crude vacuum units, a fluid catalytic cracking unit, an alkylation unit, a polymerization unit, an MTBE unit, catalytic reformers, desulfurization units, petroleum coking units, a calcining unit, sulfur recovery units, a hydrodewaxer unit, a hydrofinisher unit and associated infrastructure, including plant utilities.

The proposed modifications for the Lake Charles Refinery are very specific in nature. There are no known alternative process modifications, which would result in the desired process improvements as described in the application.

CONCLUSION: For the foregoing reasons, the LDEQ finds there are no alternative projects, which would offer more protection to the environment than the proposed site without curtailing nonenvironmental benefits.

### VI. MITIGATING MEASURES: Are there mitigating measures, which would offer more protection to the environment than the facility as proposed without unduly curtailing nonenvironmental benefits?

The environmental impact, social, economic, and other benefits associated with the projects are described under VII. COST/BENEFITS ANALYSIS (BALANCING): SOCIAL AND ECONOMIC BENEFITS. Because the modifications associated with the Petrozuata Syncrude Project consist primarily of repairing and upgrading existing equipment, the Lake Charles Refinery will be able to guarantee a steady crude supply and increase production of diesel, slurry, and gas oil; thereby making efficient use of capital expenditures with minimal impact on the environment.

Conoco and the employees of the Lake Charles Refinery are committed to complying with all environmental regulations and being a good neighbor in the community. Conoco, Inc. is dedicated to continuous improvement of the compatibility of their operations with the environment while providing high quality products that meet their customers and consumers needs. They recognize the importance of efficiently meeting society needs while responsibly working with the public and government to protect human health and the environment.

CONCLUSION: For the foregoing reasons, the LDEQ finds there are no mitigating measures, which would offer more protection to the environment than the facility as proposed without unduly curtailing nonenvironmental benefits.

# VII. AVOIDANCE OF ADVERSE ENVIRONMENTAL EFFECTS: Have the potential and real adverse environmental effects of the proposed modification been avoided to the maximum extent possible?

As part of a permitting process, potential and real adverse environmental impacts of pollutant emissions from these sources are assessed prior to construction to ensure that they are minimized. The following paragraphs describe this assessment by media:

Air: The emissions resulting from the Petrozuata Syncrude Project shall be controlled at least to the levels required by all applicable regulations and defined permit conditions. The estimated emissions from the project were based on conservative engineering design calculations or established and approved emission factors. The reconciliation of these permits, was requested by Conoco, Inc. to include changes in emission estimates associated with the steam demand from the boilers, revised calculations of emissions from the project affected heaters, a realignment and consolidation of all storage tanks with the existing caps, and other miscellaneous administrative amendments. The applications detail the Emission Calculations, State and Federal regulatory requirements and Best Available Control Technology (BACT) requirements for the affected project sources. The state and federal regulatory requirements and modeling under PSD review has shown that all affected process equipment will meet the applicable control and regulatory requirements.

Wastewater: The existing National Pollutant Discharge Elimination System (NPDES) permit for the Conoco Lake Charles Refinery (LCR) was reviewed for any facility changes, which may impact the discharge of treated wastewater. The proposed projects will not have an impact on the wastewater treatment system. Currently, process wastewater and sanitary waste are treated on site in the refinery permitted Wastewater Treatment System (WTS). The performance of the WTS is monitored daily and the results are submitted monthly to the Louisiana Department of Environmental Quality. This project does not pose an adverse affect to the WTS or compliance with its associated permit.

Waste: Conoco LCR conducted a review of the proposed modifications to the refinery for minimizing the volume, toxicity, and impact of any additional waste produced as part of the projects. There is no on-site disposal of hazardous waste proposed for this project. Conoco, Inc. installed, as part of the project is the No. 4 CTU atmospheric tower and the new, larger reactors for the No. 7 Hydrodesulfurization (HDS) unit. The new No. 7 HDS reactors has resulted in more hydrodesulfurization catalyst to either be regenerated off-site or sent for metals reclamation and reuse. Any solid waste produced by the project is disposed of in accordance with all applicable Federal, State, and Local laws and regulations.

Other: The potential impacts of other environmental receptors such as soils, sensitive wildlife habitats, and wetlands are expected to be insignificant due to the nature of the project emissions increases. Although the project will result in emissions above the PSD Significance Thresholds for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>3</sub>, and CO, there are no adverse impacts to these other environmental receptors as demonstrated in the Air Quality Analysis for the Petrozuata Syncrude Project in the PSD permit application. Additionally, no new highway or other off-site construction will be required by this project. Contemporaneous changes from various projects during the 1994 to 2002 period net SO<sub>2</sub> out of PSD review.

# AVOIDANCE OF ACCIDENTAL AIR RELEASE:

The following is a summary of the general accident prevention program in place at the Lake Charles Refinery as stated in the Risk Management Plan (RMP) submitted to EPA.

# **Accidental Release Prevention and Response Policies**

The Conoco, Inc., Lake Charles Refinery (LCR) site has a long-standing commitment to worker and public safety. This commitment was demonstrated by the resources invested in accident prevention, such as training personnel and considering safety in the design, installations, operation, and maintenance of Conoco's processes. Conoco's policy is to implement reasonable controls to prevent foreseeable releases of regulated substances. However, if a release does occur, Conoco's trained personnel will respond to control and contain the release.

# Description of the Stationary Source and Regulated Substances

The LCR site is located in Westlake, Louisiana. It operates a variety of processes that take raw crude oil and produce petroleum products such as unleaded gasoline, petroleum coke, kerosene, and jet fuel. The LCR site has regulated flammables, such as propane, butane, NFPA4 flammable substances, but none at the quantity or concentration specified in the regulation.

#### **Hazard Assessment Results**

The worst case scenario (WCS) associated with a release of flammable substances in Program 3 processes at the site is a vapor cloud explosion (VCE) involving the full inventory of the largest storage tank containing mainly butane. No administrative controls are in place to limit the storage inventory in the tank; therefore, the full tank inventory of 3 million pounds is assumed to release, completely vaporize, and ignite, resulting in a VCE. The maximum distance to the 1-psi endpoint for this WCS is 1.16 miles impacting a population of 2,266 people. Although Conoco has numerous controls to prevent such releases and to manage their consequences, no credit for passive mitigation measures was taken into account in evaluating this WCS.

The Hazard Assessment Results associated with a release of a flammable substance at the site is the radiant heat effects of a fireball formed where a sphere of mainly butane overheats from a fire impinging on the tank resulting in the release of 1.27 million pounds of butane over 40 seconds and exploding. The maximum distance to the 1-psi endpoint for this event is 0.60 mile impacting a population of 598 people. This event was selected as being a practical scenario for use in emergency planning and response.

# **Five-Year Accident History**

Conoco keeps records for all significant accidental releases that occur at their facility. Conoco investigates every incident very carefully to determine ways to prevent similar incidents from occurring. The following is a brief summary of accidental chemical releases involving material covered under EPA's RMP rule since June 1994. This incident history considered off-site impact such as shelter-in-place of the public, injuries to the public or equipment damage of \$50,000 or more.

October 28, 1994 - Fluidizer Catalytic Cracking process explosion. One death, nine injuries, no off-site impacts, property damage \$5 million.

September 30, 1996 - Product Fractionation process, flash fire due to the release of 60 pounds of propane. Three injuries, no off-site impact, no property damage.

# **Employee Participation**

The LCR site encourages employees to participate in all facets of process safety management and accident prevention. Examples of employee participation range from updating and compiling technical documents and chemical information to participating as a member of a process hazard analysis (PHA) team. Employees have access to all information created as part of the refinery accident prevention program. Specific ways that employees can be involved in the accident prevention program are documented in an employee participation plan that is maintained at the site and addresses each accident prevention program element. In addition, the site has a number of initiatives under way that address process safety and employee safety issue. These initiatives include forming teams to promote both process and personal safety. The teams typically have members from various areas of the plant, including operations, maintenance, engineering, and plant management.

# **Process Safety Information**

The LCR site keeps a variety of technical documents called Process Technology Package (PTP's). PTP's are used to help maintain safe operation of the processes. These documents address chemical properties and associated hazards, limits for key process parameters and specific chemical inventories, and equipment design basis/configuration information. Specific departments within the refinery are assigned responsibility for maintaining up-to-date process safety information. A table summarizing the reference documents and their location is readily available as part of the written employee participation plan to help employees locate any necessary process safety information.

Chemical-specific information, including exposure hazards and emergency response/exposure treatment considerations, is provided in material safety data sheets (MSDSs). This information is supplemented by documents that specifically address known corrosion concerns and any known hazards associated with the inadvertent mixing of chemicals. For specific process areas, the refinery has documented safety-related limits for specific process parameters (e.g., temperature, level, composition) in a Safe Operating Limits (SOL) section of the PT Packages. The refinery ensures that the process is maintained within these limits using process controls and monitoring instruments, highly trained personnel, and protective instrument systems (e.g., automated shutdown systems).

LCR maintains numerous technical documents that provide information about the design and construction of process equipment. This information includes materials of construction, design pressure and temperature ratings, electrical rating of equipment, etc. This information, in combination with written procedures and trained personnel, provides a basis for establishing

inspection and maintenance activities, as well as for evaluating proposed process and facility changes to ensure that safety features in the process are not compromised.

# **Process Hazard Analysis**

The LCR site has a comprehensive program to help ensure that hazards associated with the various processes are identified and controlled. Within this program, each process in systematically examined to identify hazards and ensure that adequate controls are in place to manage these hazards.

The LCR site uses a combination of the hazard and operability (HAZOP) analysis technique along with a What-If checklist to perform these evaluations. In addition to HAZOP/What-If checklist the site uses a systematic Layer of Protection Analysis (LOPA), which takes industry failure rates and applies to a scenario to calculate a threshold value. The combination of HAZOP/What-If checklist/LOPA is recognized as one of the most systematic and thorough hazard evaluation techniques. The analyses are conducted using a team of people who have operating and maintenance experience as well as engineering expertise. This team identifies and evaluates hazards of the process as well as accident prevention and mitigation measures, and makes suggestions for additional prevention and/or mitigation measures when the team believes such measures are necessary.

The PHA team findings are forwarded to local management for resolution. Implementation of mitigation options in response to PHA findings is based on a relative risk ranking assigned by the PHA team. This ranking helps ensure that potential accident scenarios assigned the highest risk receive immediate attention. All approved mitigation options being implemented in response to PHA team findings are tracked until they are complete. The final resolution of each finding is documented and retained.

To help ensure that the process controls and/or process hazards do not eventually deviate significantly from the original design safety features, the LCR site periodically updates and revalidates the hazard analysis results. These periodic reviews are conducted at least every 5 years and will be conducted at this frequency until the process is no longer operating. The results and findings from these updates are documented, tracked, and retained. Once again, the team findings are forwarded to management for consideration and the final resolution of the findings is documented and retained.

#### **Operating Procedures**

The LCR site maintains written procedures that address various modes of process operations, such as (1) process startup, (2) normal operations, (3) temporary operations, (4) emergency shutdown, (5) normal shutdown, and (6) initial startup of a new process. These procedures can be used as a reference by experienced operators and provide a basis for consistent training of new operators. These procedures are periodically reviewed and annually certified as current and accurate. The procedures are maintained current and accurate by revising them as necessary to reflect changes made through the management of change process.

In addition, the LCR site maintains key process parameter documents that provide guidance on how to respond to upper or lower limit exceedences for specific process or equipment parameters. This information, along with written operating procedures, is readily available to operators in the process and for other personnel to use as necessary to safely perform their job tasks.

# **Training**

To complement the written procedures for process operations, the LCR site has implemented a comprehensive training program for all employees involved in operating a process. New employees receive basic training in refinery operations. After successfully completing this training, a new operator is paired with a senior operator to learn process-specific duties and tasks. After operators demonstrate (e.g., through tests, skills demonstration) having adequate knowledge to perform the duties and tasks in a safe manner on their own, they can work independently. In addition, all operators periodically receive refresher training on the operating procedures to ensure that their skills and knowledge are maintained at an acceptable level. This refresher training is conducted at least every 3 years. All of this training is documented for each operator, including the means used to verify that the operator understood the training.

#### **Contractors**

The LCR site uses contractors to supplement its workforce during periods of increased maintenance or construction activities. Because some contractors work on or near process equipment, the refinery has procedures in place to ensure that contractors (1) perform their work in a safe manner, (2) have the appropriate knowledge and skills, (3) are aware of the hazards in their workplace, (4) understand what they should do in the event of an emergency, (5) understand and follow site safety rules, and (6) inform refinery personnel of any hazards that they find during their work. This is accomplished by providing contractors with (1) a process overview, (2) information about safety and health hazards, (3) emergency response plan requirements, and (4) safe work practices prior to their beginning work. In addition, the LCR site evaluates contractor safety programs and performance during the selection of a contractor. Site personnel periodically monitor contractor performance to ensure that contractors are fulfilling their safety obligations.

#### Pre-startup Safety Reviews (PSSRs)

The LCR site conducts a PSSR for any new facility or facility modification that requires a change in the process safety information. The purpose of the PSSR is to ensure that safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides one additional check to make sure construction is in accordance with the design specifications and that all-supporting systems are operationally ready. The PSSR review uses checklists to verify all aspects of readiness. A PSSR involves field verification of the construction and serves a quality assurance function by requiring verification that accident prevention program requirements are properly implemented.

# **Mechanical Integrity**

The LCR site has well-established practices and procedures to maintain pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems in a safe operating condition. The basis aspects of this program include: (1) conducting training, (2) developing written procedures, (3) performing inspections and tests, (4) correcting identified deficiencies, and (5) applying quality assurance measures. In combination, these activities form a system that maintains the mechanical integrity of the process equipment.

Maintenance personnel receive training on (1) an overview of the process, (2) safety and health hazards, (3) applicable maintenance procedures, (4) emergency response plans, and (5) applicable safe work practices to help ensure that they can perform their job in a safe manner. Written procedures help ensure that work is performed in a consistent manner and provide a basis for training. Inspections and tests are performed to help ensure that equipment functions as intended, and to verify that equipment is within acceptable limits (e.g., adequate wall thickness for pressure vessels). If a deficiency is identified, employees will correct the deficiency before placing the equipment back into service (if possible), or a team will review the use of the equipment and determine what actions are necessary to ensure the safe operation of the equipment.

Another integral part of the mechanical integrity program is quality assurance. The LCR site incorporates quality assurance measures into equipment purchases and repairs. This helps ensure that new equipment is suitable for its intended use and that proper materials and spare parts are used when repairs are made.

## Safe Work Practices

The LCR site has long-standing safe work practices in place to help ensure worker and process safety. Examples of these include (1) control of the entry/presence/exit of support personnel, (2) a lockout/tagout procedure to ensure isolation of energy sources for equipment undergoing maintenance, (3) a procedure for safe removal of hazardous materials before process piping or equipment is opened, (4) a permit and procedure to control spark-producing activities (i.e., hot work), and (5) a permit and procedure to ensure that adequate precautions are in place before entry into a confined space. These procedures (and others), along with training of affected personnel, form a system to help ensure that operations and maintenance activities are performed safely.

# Management of Change

The LCR site has a comprehensive system to manage changes to processes. This system requires that changes to items such as process equipment, chemicals, technology (including process-operating conditions), procedures, and other facility changes be properly reviewed and authorized before being implemented. Changes are reviewed to (1) ensure that adequate controls are in place to manage any new hazards and (2) verify that existing controls have not been compromised by the change. Affected chemical hazard information, process operating limits, and equipment information, as well as procedures are updated to incorporate these changes. In

addition, operating and maintenance personnel are provided any necessary training on the change.

# **Incident Investigation**

The LCR site promptly investigates all incidents that resulted in, or reasonably could have resulted in, a fire/explosion, toxic gas release, major property damage, environmental loss, or personal injury. The goal of each investigation is to determine the facts and develop corrective actions to prevent a recurrence of the incident. The investigation team documents its findings, develops recommendations to prevent a recurrence, and forwards these results to refinery management for resolution. Corrective actions taken in response to the investigation team's findings and recommendations are tracked until they are complete. The final resolution of each finding or recommendation is documented, and the investigation results are reviewed with all employees (including contractors) who could be affected by the findings. Incident investigation reports are retained for at least 5 years so that the reports can be reviewed during future PHAs and PHA revalidations.

# **Compliance Audits**

To help ensure that the accident prevention program is functioning properly, the LCR site periodically conducts an audit to determine whether the procedures and practices required by the accident prevention program are being implemented. Compliance audits are conducted at least every 3 years. Both hourly and management personnel participate as audit team members. The audit team develops findings that are forwarded to refinery management for resolution. Corrective actions taken in response to the audit team's findings are tracked until they are complete. The final resolution of each finding is documented, and the two most recent audit reports are retained.

## **Chemical Specific Prevention Steps**

The processes at the LCR site have hazards that must be managed to ensure continued safe operation. The accident prevention program summarizes previously is applied to all Program 2 and 3 EPA RMP-covered processes at the LCR site. Collectively, these prevention program activities help prevent potential accident scenarios that could be caused by (1) equipment failure and (2) human errors.

In addition to the accident prevention program activities, the LCR site has safety features on many processes to help (1) contain/control a release, (2) quickly detect a release, and (3) reduce the consequence of (mitigate) a release. The following types of safety features are used in various processes:

#### Release detection

Hydrocarbon detectors with alarms

# Release Containment/Control

- Process relief valves that discharge to a flare to capture and incinerate episodic releases.
- Scrubber to neutralize chemical releases
- Valves to permit isolation of the process (manually or automated)
- Automatic shutdown systems for specific process parameters (e.g., high level, high temperature)
- Vessel to permit partial removal of the process inventory in the event of a release (e.g. dump tank)
- Curbing or diking to contain liquid releases
- Redundant equipment and instrumentation (e.g., interruptible power supply for process control system, backup firewater pump)
- Atmospheric relief devices

# Release Mitigation

- Fire suppression and extinguishing systems
- Deluge for specific equipment
- Trained emergency response personnel
- Personal protective equipment (e.g., protective clothing, self-contained breathing apparatus)
- Blast-resistant buildings to help protect control systems and personnel

# **Emergency Response Program Information**

The LCR site maintains a written emergency response program, which is in place to protect worker and public safety as well as the environment. The program consists of procedures for responding to a release of a regulated substance, including the possibility of a fire or explosion if a flammable substance is accidentally released. The procedures address all aspects of emergency response, including proper first-aid and medical treatment for exposures, evacuation plans and accounting for personnel after an evacuation, notification of local emergency response agencies and the public if a release occurs, and post incident cleanup and decontamination requirements. In addition, the LCR site has procedures that address maintenance, inspection, and testing of emergency response equipment, as well as instructions that address the use of emergency response equipment. Employees receive training in these procedures as necessary to perform their specific emergency response duties. The emergency response program is updated when necessary based on modifications made to refinery processes or other refinery facilities.

The overall emergency response program for the LCR site is coordinated with the Lake Charles, Louisiana Local Emergency Planning Committee (LEPC). This coordination includes periodic meetings of the committee, which includes local emergency response officials, local government officials, and industry representatives. The LCR site has around-the-clock communications capability with appropriate LEPC officials and emergency response organizations (e.g., fire department). This provides a means of notifying the public of an incident, if necessary, as well as facilitating quick response to an incident. In addition to periodic LEPC meetings, the LCR site conducts periodic emergency drills that involve the LEPC and emergency response

organizations, and the refinery provides annual refresher training to local emergency responders regarding the hazards of regulated substances in the refinery.

# Planned Changes to Improve Safety

The LCR site resolves all findings from PHAs, some of which result in modifications to the process. The following types of changes are planned:

Removing toxic chemicals such as chlorine and sulfur dioxides as water treating chemicals,

Written work instructions for calibrating and testing instrumentation safety systems,

Installing emergency shutdown valves in the liquefied petroleum gas storage area to decrease the inventory that could be released.

# Prevention of Significant Deterioration Review:

PSD requires that all major new or modified sources of air emissions regulated under 1977 Clean Air Act Amendments and located in an attainment area be reviewed and approved by the US EPA. Louisiana has delegation from EPA to issue PSD permits.

PSD regulations required an analysis of existing air quality for emissions of particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon dioxide (CO), and volatile organic compound (VOC) emissions above the Prevention of Significant Deterioration significance level. Emission reduction credits from various projects during the 1994 to 2000 period net SO<sub>2</sub> and VOC out of PSD review. Screening dispersion modeling indicated maximum ground level concentrations of PM<sub>10</sub>, NO<sub>x</sub>, and CO were below the preconstruction monitoring exemption levels and the ambient significance levels. No preconstruction monitoring, increment analysis or refined modeling was required.

Conoco's Lake Charles Refinery will meet the primary and secondary National Ambient Air Quality Standards (NAAQS). Primary NAAQS are set at levels to protect human health with an adequate margin of safety. Secondary NAAQS are set at levels to protect public welfare, including protection of property and vegetation. The NAAQS standards were established by US EPA.

Screening dispersion modeling of  $PM_{10}$  emissions from the proposed project indicates that the 24-hour and annual  $PM_{10}$  concentrations of 1.75 ug/m³ and 0.069 ug/m³, respectively, which are below the modeling significance impact levels of 5 ug/m³ and 1.0 ug/m³, respectively.

Screening dispersion modeling of CO emissions from the proposed project indicate the 1-hour and 8-hour average of maximum off-site ground level concentrations are 115.26 and 53.43 micrograms per cubic meter (ug/m³) respectively, which are below the modeling significance impact levels of 2000 and 500 ug/m³. The 8-hour average concentration was also below the preconstruction monitoring exemption level of 575 ug/m³.

Screening dispersion modeling of NO<sub>x</sub> emissions from the proposed project indicates the annual average of maximum off-site ground level concentrations is 0.86 ug/m³, which is below the modeling significance level impact levels of 1 ug/m³ and the preconstruction monitoring exemption level of 14 ug/m³.

Neither preconstruction monitoring, nor increment analysis, nor refined modeling are required for PM/PM<sub>10</sub>, NO<sub>x</sub>, or CO. The Air Quality Analysis is shown in Table II of the PSD permit.

# **Best Available Control Technology:**

A Best Available Control Technology (BACT) analysis was performed for the modified and affected units for NO<sub>x</sub>, CO, and PM/PM<sub>10</sub> emissions. Based on the US EPA BACT/LAER Clearinghouse and technology transfer, the following control technologies were determined for controlling NO<sub>x</sub>, CO, and PM/PM<sub>10</sub> emissions from the modified and affected units:

From the PSD BACT Analysis, ultra low-NO<sub>x</sub> burners (ULNB) were determined as BACT to limit NO<sub>x</sub> emissions from the affected heaters to 0.06 lbs/MM BTU and from the thermal oxidizer to 0.18 lbs/MM BTU. Selective catalytic reduction (SCR), also known as thermal DeNO<sub>x</sub> is the most effective post combustion NO<sub>x</sub> control method, however, implementing SCR would require substantial capital expenditures and additional energy to keep the catalyst bed at high temperatures.

Since optimizing burners for CO influences NO<sub>x</sub> emissions, BACT for NO<sub>x</sub> is also determined to be BACT for CO, The high capital and operating costs eliminated thermal and catalytic oxidizers as BACT for CO emissions from the process heater.

The burners of No. 7 HDS Heater H-3232, operated under PSD-LA-533 (M-3), and No. 7 HDS HVGO Heater H-3201, operated under PSD-LA-390, will be replaced with ultra low-NO<sub>x</sub> burners to limit NO<sub>x</sub> emissions to 0.06 lbs/MM BTU or less. ULNB were determined as BACT for NO<sub>x</sub> emissions from these heaters. This BACT determination and NO<sub>x</sub> emission limits will replace the BACT and corresponding limits set by PSD-LA-390 and PSD-LA-533 (M-3).

From the PSD BACT Analysis, good combustion practices and using clean gaseous fuel was determined as BACT for controlling PM/PM<sub>10</sub> emissions from the incinerator and process heaters and a drift eliminator is fully integrated into the cooling tower design to minimize drift loss as BACT and control of PM/PM<sub>10</sub> emissions from the cooling tower.

### **Environmental Impacts:**

Conoco, Inc., Lake Charles Refinery will meet the primary and secondary National Ambient Air Quality Standards (NAAQS) and the Louisiana Ambient Air Standards (AAS) for toxics at the property line and will not cause air quality impacts which would adversely affect human health or the environment in Calcasieu Parish.

Computer modeling of ambient air standards for applicable toxic air pollutants (TAPs) was performed as part of the Air Toxics Compliance Plan for the Lake Charles Refinery. The

compliance plan was reviewed and accepted by the Louisiana Department of Environmental Quality as meeting the requirements of LAC 33:III.Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program.

The Prevention of Significant Deterioration (PSD) requires an analysis of existing air quality for the criteria pollutant emissions, which increase significantly from a proposed major source. Particulate Matter (PM/PM<sub>10</sub>), Nitrogen Oxides (NO<sub>X</sub>), Sulfur Dioxide (SO<sub>2</sub>), and Carbon Monoxide (CO). PM/PM<sub>10</sub>, NO<sub>X</sub>, and CO were the criteria pollutants of concern in the PSD permit.

Screening dispersion modeling of  $PM_{10}$  emissions from the proposed project indicate the 24-hour and annual average of maximum off-site ground level concentrations are 1.75 and 0.069 micrograms per cubic meter (ug/m³) respectively, which are below the modeling significance impact levels of 5 and 1 ug/m³.

Screening dispersion modeling of CO emissions from the proposed project indicate the 1-hour and 8-hour average of maximum off-site ground level concentrations are 115.26 and 53.43 micrograms per cubic meter (ug/m³) respectively, which are below the modeling significance impact levels of 2000 and 500 ug/m³. The 8-hour average concentration was also below the preconstruction monitoring exemption level of 575 ug/m³.

Screening dispersion modeling of NO<sub>x</sub> emissions from the proposed project indicates the annual average of maximum off-site ground level concentrations is 0.86 ug/m³, which is below the modeling significance level impact levels of 1 ug/m³ and the preconstruction monitoring exemption level of 14 ug/m³.

Neither preconstruction monitoring, nor increment analysis, nor refined modeling are required for PM/PM<sub>10</sub>, NO<sub>x</sub>, or CO. The Air Quality Analysis is shown in Table II of the PSD permit.

Emission reduction credits from various projects during the 1994 to 2002 period netted SO<sub>2</sub> out of PSD review.

There will be no significant impact on area soils, vegetation, and visibility nor will any Class I area will be affected. Secondary growth effects include temporary jobs during the project modification and will not have any adverse impact on the area.

The Lake Charles Refinery is organized into five operating areas: Area A, Area B, Area C, Area D, and Excel Paralubes. Each of these areas is covered under a separate Part 70 permit. Estimated emissions from the refinery in tons per year are given in the following tables:

# Area A:

Pollutant	Permitted	Proposed	Change
PM <sub>10</sub>	454.0	458.0	+ 4.0
SO <sub>2</sub>	3,018.9	3,014.9	- 4.0
$NO_x$	782.7	782.7	-
CO	799.5	786.5	- 13.0
VOC	371.2	376.8	+ 5.6

# Area B:

Pollutant	Permitted	Proposed	Change
$PM_{10}$	116.0	109.5	- 6.5
SO <sub>2</sub>	1,664.6	1,609.0	- 55.6
$NO_x$	1,154.5	893.2	-261.3
CO	1,675.7	1,502.8	172.9
VOC	300.3	307.2	+ 6.7

# Area C:

Pollutant	Permitted	Proposed	Change
$PM_{10}$	58.0	66.7	+ 8.7
SO <sub>2</sub>	345.9	203.9	- 142.0
$NO_{x}$	523.5	.550.4	+ 26.9
CO	672.5	291.8	- 380.7
VOC	297.6	275.5	-22.1

# Area D:

Pollutant	Permitted	Proposed	Change
$PM_{10}$	0.1	0.1	-
SO <sub>2</sub>	1.1	1.1	-
NO <sub>x</sub>	5.1	5.1	-
CO	25.9	25.9	_
VOC	601.8	531.2	- 70.6

# **Excel Paralubes:**

Pollutant	Permitted	Proposed	Change
$PM_{10}$	21.6	27.4	+ 5.8
SO <sub>2</sub>	265.7	250.1	- 15.6
$NO_{x}$	80.3	105.4	+ 25.1
CO	206.1	172.6	- 33.5
VOC	154.2	152.8	- 1.4

There is no increase in Toxic Air Pollutants (TAPs) regulated under LAC 33:III.Chapter 51 – Comprehensive Toxic Air Pollutant Emission Control Program.

CONCLUSION: The potential and real adverse environmental effects of the proposed modification been avoided to the maximum extent possible.

# VIII. COST/BENEFIT ANALYSIS (BALANCING):

SOCIAL AND ECONOMIC BENEFITS: Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

The social and economic benefits of the proposed projects will greatly outweigh their adverse environmental impacts. Notably the Louisiana constitution requires balancing, not protection of the environment as an exclusive goal. Save Ourselves, 452 So.2d at 1157.

#### ENVIRONMENTAL ANALYSIS AND CONSIDERATIONS

Prevention of Significant Deterioration (PSD) regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed modification or a new facility. PM<sub>10</sub> was the pollutant of concern in this case.

Air dispersion modeling of PM<sub>10</sub> emissions from the proposed project indicated that the 24-hour and annual PM<sub>10</sub> concentrations of 1.75 micrograms per cubic meter (ug/m³) and 0.069 ug/m³ are below the minimum significance levels of 5 ug/m³ and 1.0 ug/m³, respectively. Preconstruction monitoring, increment analysis, and refined modeling were not required. [Reference: Table II, Air Quality Analysis Summary, pg. 24, PSD Permit].

With respect to the NAAQS-covered pollutants, EPA and the DEQ believes that where, as here, an air quality concern is raised regarding a pollutant regulated pursuant to an ambient, health-based standard, and where the area is in compliance with, and will continue after the operation of the facility to comply with, that standard, the air quality in the surrounding community is presumptively protective and emissions of that pollutant should not be viewed as "adverse". By establishing an ambient, public health threshold, standards like the NAAQS contemplate multiple source contributions and establish a protective limit on cumulative emissions that should ordinarily prevent an adverse air quality impact.

There are no known increases in the environmental impact costs associated with the projects. These projects do not involve the expansion of existing refinery boundaries, which extend significantly outward from the process area of the refinery.

The social and economic benefits of the projects will greatly outweigh its environmental impacts costs. The social and economic benefits of the project are discussed in detail below:

# **SOCIAL BENEFITS:**

Conoco's LCR and its employees are active participants in numerous socially beneficial activities in the community, Parish, and state.

### **ECONOMIC BENEFITS**

Conoco's LCR provides important economic benefits to Calcasieu Parish and the state of Louisiana. The Petrozuata Syncrude Project will increase these economic benefits by employing temporary construction jobs and will ensure a viable future for the refinery by maintaining the employment of 847 LCR employees and 700 contract employees. Implementation of the Petrozuata Syncrude Project will result in approximately 1000 temporary construction related jobs and will cost approximately \$163 million dollars in labor and capital expenses. The annual payroll, including contractors, for the existing LCR currently is \$111 million dollars with an average salary of \$73,000. In 1997, LCR purchased \$1,857 million in goods and services.

Dr. Loren Scott of LSU in Baton Rouge recently analyzed the impact of the petrochemical industry in Louisiana. In his October, 1998, report entitled "The Chemical Industry in Louisiana - An Economic Profile," Dr. Scott reports that for every dollar spent by an industrial facility, there's at least an additional two dollars in additional revenues and expenditures due to the multiplier effect. Thus, this project will likely result in the direct infusion of over 450 million dollars into the local economy during construction.

Conoco's ongoing operation contributes significant benefits to the local economy as well. For example, Conoco pays over seven million a year sales, use and property taxes to local and state governments. Furthermore, LCR employees and contractors also pay substantial state and local taxes. Based on Dr. Scott's report, the state of Louisiana will earn 6.6 cents in tax revenue in Calcasieu Parish, 4.4 cents for each dollar earned by our employees and contractors. Using these factors and an annual payroll of 111 million dollars, Conoco employees and contractors contribute an additional 7.3 million to the state and five million to the parish and city governments; thus, Conoco and its staff directly contribute twenty million dollars per year to state and local governments. Also, Conoco would like to point out that business and industry already pays the lion's share of taxes in Calcasieu Parish — approximately 86 percent. Local citizens pay the balance — almost 14 percent. It should also be noted that Conoco's operations generate additional jobs in the area as employees make purchases and investments. Analysis by the economic development arm of The Chamber of Southwest Louisiana indicates that every one million dollars in payroll generates another 3.2 million dollars in local earnings.

LCR provides their own fire protection and wastewater treatment for the site and, as such, would not drain or diminish these services provided by the local governments or municipalities. In addition, no new highways or roads will be required for the project.

Based on the information described above, the social and economic benefits ssociated with the project far outweigh its environmental impact costs.

## IX. ENVIRONMENTAL JUSTICE/CIVIL RIGHTS TITLE VI ISSUES

# **Title VI Impact Determination**

EPA's Office of Civil Rights in the Michigan Select Steel Title VI Complaint (EPA File No. 5R-98-R5, The Office of Civil Rights dated October 30, 1998) determined as follows in "Allegation Regarding Air Quality Impacts" Pages 25 and 26:

The environmental laws that EPA and the states administer do not prohibit pollution outright; rather, they treat some level of pollution as "acceptable" when pollution sources are regulated under individual, facility-specific, permits recognizing society's demand for such things as power plants, waste treatment systems, and manufacturing facilities. In effect, Congress-and, by extension, society—has made a judgement that some level of pollution and possible associated risk should be tolerated for the good of all, in order for Americans to enjoy the benefits of a modern society—to have heat in our homes, and the products we use to clean dishes or manufacture our wares. The expectation and belief of the regulators is that, assuming the facilities comply with their permit limits and terms, the allowed pollution levels are acceptable and low enough to be protective of the environment and human health.

EPA and the states have promulgated a wide series of regulations to effectuate these protections. Some of these regulations are based on assessment of public health risks associated with certain levels of pollution in the ambient environment. The National Ambient Air Quality Standards established under the Clean Air Act (CAA) are an example of this kind of health-based ambient standard setting. Air Quality that adheres to such standards is presumptively protective of public health. Other standards are "technology-based," requiring installation of pollution control equipment, which has been determined to be appropriate in view of pollution reduction goals. In the case of hazardous air pollutants under the CAA, EPA sets technology-based standards for industrial sources of toxic air pollution. The maximum achievable control technology standards for industrial sources of toxic air pollution. The maximum achievable control technology standards under the Clean Air Act are examples of this kind of technology-based standards, an assessment of the remaining or residual risk is undertaken and additional controls implemented where needed. [Clean Air Act 112(f)(2)(A)(1) states"... If standards promulgated pursuant to subsection (d) and applicable to a category or subcategory of sources emitting a pollutant (or pollutants) classifies as a known, probable or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in a million, the Administrator shall promulgate standards under this subsection for such category." 42 U.S.C. 7412(f)(2)(A)(1).]

Title VI and EPA's implementing regulations set out a requirement independent of the environmental statutes that all recipients of EPA financial assistance ensure that they implement their environmental programs in a manner that does not have discriminatory effect based on race, color, or national origin. If recipients of EPA funding are found to have implemented their EPA-delegated or authorized federal environmental programs in a manner which distributes the

otherwise acceptable residual pollution or other effects in ways that result in a harmful concentration of those effects in racial or ethnic communities, then a finding of an adverse disparate impact on those communities within the meaning of Title VI may, depending on the circumstance may be appropriate.

Importantly, to be actionable under Title VI, an impact must be both "adverse" and "disparate." The determination of whether the distribution of effects from regulated sources to racial or ethnic communities is "adverse" within the meaning of Title VI will necessarily turn on the facts and circumstances of each case and nature of the environmental regulation designed to afford protection. As the United States Supreme Court stated in the case of Alexander v. Choate, 469 U.S. 287 (1995), the inquiry for federal agencies under Title VI is to identify the sort of disparate impacts upon racial or ethnic groups which constitute "sufficiently significant social problems, and [are] readily enough remediable, to warrant altering the practices of the federal grantees that had produced those impacts." Id at 293-94 (emphasis added).

The complaint in this case raises air quality concerns regarding several NAAQS-covered pollutants, as well as several other pollutants. With respect to the NAAQS-covered pollutants, EPA believes that where, as here, an air quality concern is raised regarding a pollutant regulated pursuant to an ambient, health-based standard, and where the area in question is in compliance with, and will continue after the operation of the challenged facility to comply with, that standard, the air quality in the surrounding community is presumptively protective and emissions of that pollutant should not be viewed as "adverse" within the meaning of Title VI. By establishing an ambient, public health threshold, standards like the NAAQS contemplate multiple source contributions and establish a protective limit on cumulative emissions that should ordinarily prevent an adverse air quality impact.

With respect to the pollutants of concern, which are not covered by the NAAQS, Title VI calls for an examination of whether those pollutants have become so concentrated in a racial or ethnic community that the addition of a new source will pose a harm to that community. If there is no "adverse" impact for anyone living in the vicinity of the facility, it is unnecessary to reach the question of whether the impacts are "disparate." [Reference: Letter from Ann E. Goode, Director of EPA's Office of Civil Rights to Father Phil Schmitter and Sister Joanne Chiaverni, Co-Directors, St. Francis Prayer Center, G-2381 East Carpenter Road, Flint Michigan 48909-7973].

It should also be noted that the United States Supreme Court recently held in *Alexander v. Sandoval*, (532 U.S. (2001) [No. 99-1908, decided April 24, 2001], that there is no private cause of action to enforce Section 602 of Title VI of the Civil Rights Act of 1964, 78 Stat. 252, as amended, 42 U.S.C. §2000d *et. seq*.

LDEQ accepts EPA's assessment and reasoning. Conoco, Inc.'s Lake Charles Refinery will meet the primary and secondary National Ambient Air Quality Standards (NAAQS). Accordingly, there will be no "adverse" and "disparate" impact in the surrounding area.

#### X. CONCLUSION

The LDEQ, Office of Environmental Services, Permits Division, has conducted a review of the information submitted and is of the opinion that a PSD Permit and the five Title V Operating Permits should be issued for the proposed permit modifications at Conoco, Inc.'s Lake Charles Refinery, for the Petrozuata Syncrude Project.

Conoco, Inc., Lake Charles Refinery has reduced air toxic emissions by 77.2 percent from 1991 to 1997, decreasing air toxic emissions from 647,439 pounds per year to 147,394 pounds per year.

The emissions resulting from the Petrozuata Syncrude Project will be controlled at least to the levels required by all applicable regulations and defined permit conditions. The estimated emissions from the project are based on conservative engineering design calculations or established and approved emission factors. The applications detail the Emission Calculations, State and Federal regulatory requirements and Best Available Control Technology (BACT) requirements for the project sources. The state and federal regulatory requirements and modeling under PSD review show that all affected process equipment will meet the applicable control and regulatory requirements.

Screening dispersion modeling of  $PM_{10}$  emissions from the proposed project indicate the 24-hour and annual average of maximum off-site ground level concentrations are 1.75 and 0.069 micrograms per cubic meter (ug/m³) respectively, which are below the modeling significance impact levels of 5 and 1 ug/m³.

Screening dispersion modeling of CO emissions from the proposed project indicate the 1-hour and 8-hour average of maximum off-site ground level concentrations are 115.26 and 53.43 micrograms per cubic meter (ug/m³) respectively, which are below the modeling significance impact levels of 2000 and 500 ug/m³. The 8-hour average concentration was also below the preconstruction monitoring exemption level of 575 ug/m³.

Screening dispersion modeling of  $NO_x$  emissions from the proposed project indicates the annual average of maximum off-site ground level concentrations is 0.86 ug/m³, which is below the modeling significance level impact levels of 1 ug/m³ and the preconstruction monitoring exemption level of 14 ug/m³.

This project will increase personal income for Louisiana residents and increase tax revenues for Calcasieu Parish, surrounding parishes and the state of Louisiana. These benefits are major, significant, and tangible. They far outweigh the minor environmental impact costs by the proposed modification.

There is no increase in Toxic Air Pollutants (TAPs) regulated under LAC 33:III.Chapter 51 – Comprehensive Toxic Air Pollutant Emission Control Program.

## XI. FINAL CONCLUSIONS:

Any and all conclusions of law included in the foregoing findings of fact are adopted herein.

Based on a careful review and evaluation of the entire administrative record, which includes the permit application, additional information submitted by Conoco, Inc., the draft permits, and all public comments received, the Louisiana Department of Environmental Quality, Office of Environmental Services finds that the proposed Petrozuata Modification and the Title V Permits comply with all applicable federal and state statutes and regulations and complies with the requirements of Save Ourselves v. La. Envtl. Control Comm n 452 So.2d 1152, 1157 (La. 1984). Particularly, the Department finds that the proposed Modification has minimized or avoided potential and real adverse environmental impacts to the maximum extent possible and that social and economic benefits of the proposed Modification outweigh adverse environmental impact. Id.

Accordingly, the Department hereby issues the Prevention of Significant Deterioration (PSD) Permit and the five Part 70 (Title V) Construction and Operating Permits for Conoco, Inc.'s Lake Charles Refinery.

Linda Korn Levy Assistant Secretary

Office of Environmental Services

Date

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES
PUBLIC COMMENTS RESPONSE SUMMARY
AREAS A, B, C, D, EXCEL PARALUBES
LAKE CHARLES REFINERY, CONOCO INC.
WESTLAKE, CALCASIEU PARISH, LOUISIANA

The Louisiana Department of Environmental Quality (LDEQ or DEQ), Environmental Services Division, Permits Division, held two public hearings on Wednesday, September 4, 2002, in the Council Chambers of Westlake City Hall, 1001 Mulberry Street, Westlake, Louisiana. These hearings afforded the public an opportunity for technical comments on the proposed modifications of the Prevention of Significant Deterioration (PSD) permit and the five Part 70 (Title V) operating permits. This document responds to pertinent statements (questions and/or comments) received, both at the public hearing and by mail, regarding the impact of emissions on air quality. Many of the public statements that were received have no direct bearing on issues involved with air quality under the Code of Federal Regulations and Louisiana Regulations. The following public statements, together with the Environmental Services, Permits Division's responses, are relevant to the PSD and Part 70 (Title V) permits.

#### **COMMENT NO. 1**

On the questions covered by the Environmental Assessment: The National Hurricane Center's SLOSH Model predicts an inundation of the entire facility with over 10 feet of seawater above ground level in a Category 3 or stronger storm. LADEQ needs to make local applicants aware of that and require them to take preventive action in order to avoid catastrophic consequences for both the companies and their neighbors.

#### **RESPONSE TO COMMENT NO. 1**

The SLOSH (Sea, Lake and Overland Surges from Hurricanes) is a computerized model run by the National Hurricane Center (NHC) to estimate storm surge heights and winds resulting from historical or predicted hurricanes by taking into account (a) Pressure, (b) Size, (c) Forward speed, (d) Track, and (e) Winds.

The calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads and other physical features. The point of a hurricane's landfall is crucial to determining which areas will be inundated by the storm surge. The SLOSH model is best used for defining the potential maximum surge for a location using the forecasts of the storm's intensity at landfall and the tide at that time.

Graphical outputs as shown on the National Hurricane Center website for a hurricane with 10 to 12 foot tidal surge (http://www.nhc.noaa.gov/HAW/day1/slosh.htm) indicates no tidal surge over land areas beyond the coast line, therefore, no flooding would occur in the Conoco's Lake Charles

Refinery area from tidal surge from a hurricane

According to the Federal Emergency Management Agency (FEMA) Region VI, the Conoco Refinery is constructed above the special flood hazard area designated as a zone A11, with an associated base flood elevation above the 100-year floodplain. National Geodetic Vertical Datum of 1929 (NGVD). The storm surge relates to coastline hurricane activity and does not apply to the Westlake facility located approximately 35 miles inland.

#### **COMMENT NO. 2**

Conoco says that there are no known increases in the social costs associated with the Crude Expansion Project. The same would have surely been said of any and all previously permitted projects in the Calcasieu Parish area. Yet, in a recent Community Health and Environment Forum held at the Howell Institute, McNeese State University, a representative of the Federal Agency for Toxic Substances and Disease Registry, Dr. Ketna Mistry, expressed concern that there could be a connection between Calcasieu's elevated levels of soft-tissue cancers and environmental degradation. Medical bills, loss of family earnings through illness and death, pain and suffering are all social costs that have been borne by the public at large while corporations have not had to account for them as expenses. The public should not have to subsidize company profits in those terrible ways. That is not within the spirit of capitalism or free enterprise and to deny that is to reveal a lack of sincere loyalty to those American principles."

#### **RESPONSE TO COMMENT NO. 2**

As demonstrated by screening dispersion modeling (ISCST3), the human health and the environment in Calcasieu Parish will not be adversely affected. Compliance with the National Ambient Air Quality Standards (NAAQS) and Louisiana Ambient Air Standards (AAS) has been demonstrated for pollutants, as necessary. For those pollutants that did not require NAAQS analysis, compliance with the PSD Significance Thresholds demonstrates that the impacts associated with the Petrozuata Syncrude Project will not cause a measurable impact in the local area. The allowable emission limits for criteria pollutants equals a reduction of over two 2,000,000 pounds per year. Sulfur Dioxide (SO<sub>2</sub>) emission limits were reduced approximately 434,000 pounds per year. Nitrogen oxide compounds (NOX) emissions will be reduced approximately 418,600 pounds per year. Carbon monoxide (CO) emissions will be reduced approximately 1,200,000 pounds per year. Volatile organic compounds (VOCs) will also be reduced approximately 163,600 pounds per year.

In a study conducted by Mr. Nuruddin Joma, an epidemiologist and medical student at Tulane School of Medicine, Ms. Christine Romalewski, the epidemiologist supervisor, and Ms. Joan Bostell, a statistician with the State Center for Health Statistics, Louisiana Office of Public Health, entitled "WHICH PARISHES ARE MOST HEALTHY". Calcasieu parish was

identified as one of four parishes with a number 1 ranking for the most healthy parishes. (Journal Louisiana State Medical Society, Vol. 149, October, 1997).

Also, another study using data from the Louisiana Tumor Registry, Dr. Vivian Chen evaluated the incident rates of many cancers found in South Louisiana and found that people living in South Louisiana are not more likely to develop cancer than the national averages. (Journal Louisiana State Medical Society, Vol. 150, April, 1998).